said diffractive optical element having at least three diffraction optical parts in the boundary areas of the respective layers;

said diffractive optical element being set so that, at three wavelengths, the diffraction efficiency thereof is maximum, said three wavelengths being substantially coincident with the main wavelengths of the three primary colors included in the light from said light source.

REMARKS

In view of the above amendments and the following remarks, Applicant requests favorable reconsideration and allowance of the above-identified application.

Claims 1, 2, 4, and 5 are now pending in this application, with Claims 1, 4, and 5 being independent. By this Amendment, Applicant has canceled Claim 3 and amended each of the independent claims.

Claims 1-5 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Applicant has amended the claims to attend to the matters noted in the Office Action as giving rise to this rejection. Accordingly, Applicant requests withdrawal of the § 112 , second paragraph, rejection.

Claims 1-5 also stand rejected under 35 U.S.C. § 102 over European Patent Application No. 0 898 182 (Nakai). Applicant traverses this rejection.

As recited in independent Claim 1, Applicant's invention is directed to a diffractive optical element having first, second, and third layers, each having a relief-type grating. The layers are formed of different materials. The diffractive optical element has at

least three diffraction optical parts in the boundary areas of the respective layers. In addition, the diffractive optical element is set so that, at 450 ± 20 nm, 550 ± 20 nm, and 650 ± 20 nm, the diffraction efficiency thereof for diffractive light of a predetermined order is maximum.

Independent Claims 4 and 5 are directed to optical systems having diffractive optical elements with layers generally similar to those recited in independent Claim 1. In independent Claim 4, however, the diffractive optical element is set so that, at three wavelengths, the diffraction efficiency thereof is maximum, with the three wavelengths being substantially coincident with the main wavelengths of the three primary colors to which the sensitivity of the photosensitive surface is high. In independent Claim 5, the diffractive optical element is set so that, at three wavelengths, the diffraction efficiency thereof is maximum, with the three wavelengths being substantially coincident with the main wavelengths of three primary colors included in the light from the light source.

The Nakai application is directed to a diffractive optical element formed by laminating three layers of diffraction gratings made of three different kinds of materials. The Office Action states that the diffractive optical element described in that document is set so that, at wavelengths of about 450 nm, about 550 nm, and about 650 nm, the diffraction efficiency thereof is maximum. Applicant, however, submits that the Nakai application describes that the diffractive optical element is assumed to have three design wavelengths of 410 nm, 486.1 nm (wavelength of F-line), and 656.3 nm (wavelength of C-

line). Accordingly, Applicant submits that the values of those three wavelengths are not the same as the values recited in independent Claim 1 of the present application.

In addition, while the diffractive optical element described in the Nakai application is assumed to have three design wavelengths, that application does not describe that the three design wavelengths are determined by the specifics of a photosensitive surface or light source.

Accordingly, Applicant submits that the Nakai application fails to describe or suggest at least the features of the diffractive optical element being set so that, at three wavelengths, (i) the diffraction efficiency thereof for diffractive light of a predetermined order is maximum, the three wavelengths being 450 ± 20 nm, 550 ± 20 nm, and 650 ± 20 nm, as recited in independent Claim 1; (ii) the diffraction efficiency thereof is maximum, with the three wavelengths being substantially coincident with the main wavelengths of the three primary colors to which the sensitivity of the photosensitive surface is high, as recited in independent Claim 4; and (iii) the diffraction efficiency thereof is maximum, the three wavelengths being substantially coincident with the main wavelengths of the three primary colors included in the light from the light source, as recited in independent Claim 5.

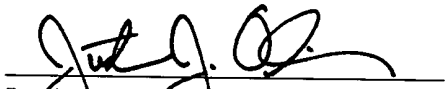
For the foregoing reasons, Applicant submits that the independent claims are allowable over the applied document, and requests withdrawal of the rejections under 35 U.S.C. § 102.

Claim 2 depends from independent Claim 1, and thus is allowable over the applied document for the reasons noted above with respect to Claim 1. In addition, Claim

2 recites features of the invention still further distinguishing it from the applied document. Applicant requests favorable and independent consideration thereof.

Applicant's undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,



Justin J. Oliver
Attorney for Applicant
Registration No. 44,986

FITZPATRICK, CELLA, HARPER & SCINTO
30 Rockefeller Plaza
New York, New York 10112-3801
Facsimile: (212) 218-2200

JJO/tmm

VERSIONS WITH MARKINGS TO SHOW
CHANGES MADE TO THE CLAIMS

1. (Amended) A diffractive optical element comprising:

a first layer having a relief-type grating;

a second layer having a relief-type grating; and

a third layer having a relief-type grating;

said first, second and third layers being formed of different materials;

said diffractive optical element having at least three diffraction optical parts in the boundary areas of the respective layers;

said diffractive optical element being set so that, at three wavelengths, the diffraction efficiency thereof for diffracted light of a predetermined order [may be] is maximum, said three wavelengths being [substantially coincident with the main wavelengths of the three primary colors] 450 ± 20 nm, 550 ± 20 nm, and 650 ± 20 nm.

4. (Amended) An optical system for forming an image on a photosensitive surface, comprising:

a diffractive optical element comprising:

a first layer having a relief-type grating;

a second layer having a relief-type grating; and

a third layer having a relief-type grating;

said first, second and third layers being formed of different materials;

said diffractive optical element having at least three diffraction optical parts in the boundary areas of the respective layers;

said diffractive optical element being set so that, at three wavelengths, the diffraction efficiency thereof [may be] is maximum, said three wavelengths being substantially coincident with the main wavelengths of the three primary colors to which the sensitivity of said photosensitive surface is high.

5. (Amended) An optical system for illuminating an original picture with light from a light source, and projecting the image of the illuminated original picture, provided with:

a diffractive optical element comprising:

a first layer having a relief type grating;

a second layer having a relief type grating; and

a third layer having a relief type grating;

said first, second and third layers being formed of different materials;

said diffractive optical element having at least three diffraction optical parts in the boundary areas of the respective layers;

said diffractive optical element being set so that, at three wavelengths, the diffraction efficiency thereof [may be] is maximum, said three wavelengths being

substantially coincident with the main wavelengths of the three primary colors included in the light from said light source.